UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

NATURAL RESOURCES DEFENSE COUNCIL, *et al.,* Plaintiffs, v. METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO, Defendant.	No. 11 C 02937 Judge John J. Tharp, Jr.

MEMORANDUM OPINION AND ORDER

The plaintiffs, Natural Resources Defense Council, Inc., Sierra Club, Inc., and Prairie Rivers Network are non-profit environmental groups who have brought this case pursuant to the citizen-suit provision of the federal Clean Water Act. In Count Two, the subject of the instant motions, the plaintiffs claim that the Metropolitan Water Reclamation District of Greater Chicago ("MWRD" or "District") violated the terms of its National Pollution Discharge Elimination System ("NPDES") permits, and thus the Act itself, at three area water reclamation plants ("WRPs") that it operates. Specifically, the plaintiffs claim that the effluent from the WRPs contains levels of phosphorus that have caused conditions in the receiving waters that violate Illinois water quality standards with respect to levels of algal and plant growth and dissolved oxygen ("DO"). The plaintiffs maintain that the water quality standards are enforceable against the District because Special Condition 5 of the three WRPs' applicable NPDES permits incorporates those standards.

Two summary judgment motions are pending. In the first, the District requests judgment as a matter of law based on two legal defenses: primary jurisdiction and the Clean Water Act's

so-called "permit shield." In the second, the plaintiffs seek judgment on the merits of their claim that the District was and is violating the water quality standards, its permit, and the Act, as a result of the conditions created by the WRPs' effluent. The legal defenses do not defeat the plaintiffs' claims, but those claims present material disputes of fact that make summary judgment for the plaintiffs inappropriate. Accordingly, both motions are denied.

FACTS[1]

The District is a unit of local government that operates wastewater collection, treatment, and discharge facilities in the greater Chicago area. As relevant here, the District operates the North Side, Stickney, and Calumet water reclamation plants. These WRPs discharge into the Chicago Area Waterway System ("CAWS"), which includes the North Shore Channel, the North Branch of the Chicago River below its confluence with the North Shore Channel, the Main Branch and South Branch of the Chicago River, the Chicago Sanitary and Ship Canal ("CSSC"), the Calumet-Sag Channel, and the portion of the Little Calumet River east of its confluence with the Calumet-Sag Channel. The CAWS normally flows from the CSSC into the Des Plaines River, which joins downstream with the Kankakee River to form the Illinois River, which flows generally southwest and ultimately into the Mississippi River near Alton, Illinois. It is estimated that over 70% of the flow in the CAWS, and even more than that (about 85%) when water diversions from Lake Michigan are reduced, consists of treated wastewater from the three District WRPs at issue in this case.

[1] Because the merits are not at issue in the defendant's motion, which is addressed first, this summary omits much of the evidence that is relevant only to the plaintiffs' motion, which is addressed separately. The summary of material, undisputed (or not properly disputed) facts is drawn from the parties' statements and responses pursuant to Local Rule 56.1, and the facts and reasonable inferences therefrom will be construed in favor of the non-moving party. *See Cung Hnin v. TOA (USA), LLC*, 751 F.3d 499, 503-504 (7th Cir. 2014); *Senske v. Sybase, Inc.*, 588 F.3d 501, 503 n.1 (7th Cir. 2009) (facts are properly disputed only with citations to evidence that directly contradicts opponent's assertions).

In 1992, the District applied for, and ultimately was granted, National Pollutant Discharge Elimination System permits for the three relevant WRPs. The NPDES permits were issued by the Illinois Environmental Protection Agency (IEPA) pursuant to the authority delegated to the State by the federal EPA. The WRPs' permits were issued in 2002 and, although they technically expired in 2007, they remained in effect in 2011, when this lawsuit commenced, and during permit renewal proceedings that culminated in the issuance of revised permits that became effective on January 1, 2014. The parties refer to the two sets of permits as the "2002 permits" and the "2013 permits," respectively (the latter having been granted in December 2013), and the Court does the same.

As noted in the District's 1992 permit applications, the WRPs' discharges contain phosphorus from sources including human excreta, industry, and storm water runoff containing animal waste, fertilizers, fallen leaves, dishwasher detergents, food waste, and tap water. Phosphorus is a naturally occurring basic element and a nutrient that enables plants and algae to grow. When the supply of phosphorus is limited in a freshwater system, the growth of plants and algae in the system likewise is limited. Where phosphorus is present in high levels that are no longer limiting, plants and algae have what amounts to an unlimited food supply; unless other factors are limiting, the growth of plants and algae increases. It is undisputed that in the CAWS and Illinois River, phosphorus is not a limiting factor to plant and algae growth.

The 2002 permits did not place any numeric effluent limitations on phosphorus, even though the District's permit applications identified the quantity of phosphorus in its treated wastewater discharges and disclosed that the WRPs had no original design capacity to remove phosphorus. The 2002 permits do impose numeric limitations on other constituents of the discharges from the WRPs. Those limitations are coupled with mandatory self-reporting and

monitoring obligations. The IEPA's decision not to impose numeric phosphorus limitations was over objections by the plaintiffs and others during the public comment period of the permit process. In its Responsiveness Summary, which addressed the public comments, IEPA stated, in part: "[T]his permit does not authorize or provide any legal protection to the [District] for violation of downstream water quality standards that may result from the discharges covered by these permits."

The 2002 permits include a provision, Special Condition 5, that states in its entirety: "The effluent, alone or in combination with other sources, shall not cause a violation of any applicable water quality standards outlined in 35 Ill. Adm. Code 302." In turn, the state administrative code sets forth water quality standards ("WQS") for waterways based upon their use. One such WQS, entitled "Offensive Conditions," requires that so-called general use waters "shall be free from . . . plant or algal growth . . . of ***other than natural origin***." 35 Ill. Adm. Code. § 302.203 (emphasis added). A second WQS entitled "Unnatural Sludge" requires that certain other waters "shall be free from . . . ***unnatural plant or algal growth***." 35 Ill. Adm. Code. §§ 302.403 (emphasis added). A third WQS sets forth numeric minimums for DO levels in applicable waters: "Dissolved oxygen . . . shall not be less than 4.0 mg/L at any time except that the Calumet-Sag Channel shall not be less than 3.0 mg/L at any time." 35 Ill. Admin. Code § 302.405. A similar provision sets forth seasonally variable minimums for DO in general use waters, never below 3.5 mg/L. 35 Ill. Admin. Code. § 302.206.

In 2009, IEPA provided public notice of the proposed terms for the District's renewed NPDES permits for the WRPs. The plaintiffs again participated in public comment and advocated for the inclusion of numeric effluent limits on phosphorus discharges. Ultimately, the 2013 permits included new numeric effluent limits on the discharge of phosphorus; however, the

three WRPs were given from 49 to 120 months to comply with those new numeric standards. In the interim, there are design, construction, and reporting milestones that the WRPs must meet. The 2013 permits also continue to impose Special Condition 5.[2]

In a 2011 memorandum prompted by its Gulf Hypoxia Action Plan, the federal EPA instructed that IEPA "must determine whether nutrient discharges will cause, have a reasonable potential to cause, or contribute to an excursion beyond the criteria in 35 Ill. Adm. Code 302.203 ["unnatural" algal growth] or 302.205 [phosphorus] in proximate and downstream waters; and (2) set nutrient effluent limitations which are derived from and comply with 35 Ill. Adm. Code 302.203 and 302.205, as applicable." It is undisputed that currently the State of Illinois, acting through the IPCB, is actively considering modifications to its WQS that set numeric nutrient limitations for phosphorus and other nutrients and that the plaintiffs have been actively participating in that process. IEPA, in cooperation with the Illinois Department of Agriculture, also funded and recently published a report entitled *Illinois Nutrient Loss Reduction Strategy*, prepared by a working group of state and local government agencies, public and private interest groups, and researchers, in order to "direct efforts to reduce nutrients from point and non-point sources in a coordinated, primarily voluntary, and cost-effective manner."

At times the District has been subject to enforcement action under the narrative WQS regulating unnatural algal growth. In September 2006, the IEPA issued a Notice of Violation to the District after the District self-reported an incident involving a combined sewer overflow

[2] The plaintiffs here are among the group of petitioners who appealed the 1.0 mg/L phosphorus limit in the 2013 permits to the Illinois Pollution Control Board, which granted summary judgment in favor of the District and the IEPA, upholding the limitation as sufficient. Recently, however, the Illinois Appellate Court reversed the IPCB, holding that there is a genuine issue of material fact regarding whether, to prevent unnatural plant or algal growth, the phosphorus limit should be lower than 1.0 mg/L. *See Prairie Rivers Network v. Illinois Pollution Control Bd.*, 2016 IL App (1st) 150971, ¶ 35

(CSO) discharge from a District pumping station—a facility other than those at issue in this case—that killed fish. The District was charged with violating "the 'Offensive Conditions' water quality standard contained in [section] 302." Sewer overflows were also the subject of a 2011 federal lawsuit against the District by the federal and state EPAs, which, in relevant part, alleged that overflows from the same three WRPs at issue in this case violated Special Condition 5 of the applicable permits. That lawsuit ended with the entry of a consent decree. *See* Note 3, *infra.*

The operative complaint in this case brings two counts against the District, but only Count II, alleging that the WRPs' phosphorus discharges violate their NPDES permits by way of the incorporated water quality standards, is currently at issue.[3] As noted, both parties have moved for summary judgment on Count II. The defendant's motion asserts legal defenses to liability, whereas the plaintiffs' motion requests judgment on the merits based upon what it contends is an undisputed factual record of unnatural plant and algal growth and inadequate DO levels throughout the CAWS, in violation of the applicable WQS.

DISCUSSION

Summary judgment should be granted where "the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). In deciding each motion, the Court examines the record in the light most favorable to the non-moving party, resolving all evidentiary conflicts in its favor and according it the

[3] Count I seeks injunctive relief and civil damages for combined sewer overflow discharges in violation of the NPDES permits and, therefore, the CWA. The parties agreed to stay discovery as to Count I in light of parallel litigation brought by the federal and State governments with respect to the same discharges. *See United States et al. v. MWRD*, No. 11 C 8859 (N.D. Ill.). In that case, a consent decree was entered, and the plaintiffs in this case intervened to object to it. The Seventh Circuit affirmed the entry of the decree over the plaintiffs' objections and held that the consent decree was binding against them and all other would-be private litigants. *United States et al. v. MWRD*, 792 F.3d 821 (7th Cir. 2015). The plaintiffs have now abandoned Count I in this case.

benefit of all reasonable inferences that may be drawn from the record. *See Rosenbaum v. White*, 692 F.3d 593, 599 (7th Cir. 2012).

I. The District's Summary Judgment Motion

The District's summary judgment motion presents two legal defenses to Count II. First, the District contends that pursuant to the doctrine of primary jurisdiction, this Court should defer the issue of its purported WQS violations to the pertinent administrative authorities. Second, it argues that as a matter of law, the Clean Water Act's "permit shield" applies and insulates it from liability for any discharge of phosphorus. The plaintiffs dispute the applicability of these defenses.

A. Primary Jurisdiction

The Seventh Circuit has described the concept of primary jurisdiction as "really two doctrines," encompassing both "exclusive agency jurisdiction," which is not argued here, and abstention in favor of an agency with superior expertise over the subject matter. *Arsberry v. Illinois*, 244 F.3d 558, 563 (7th Cir. 2001). The latter doctrine, which the defendant invokes, allows a court to "refer" some "issue" to an agency with the specialized expertise or experience to resolve. *See id*; *Reiter v. Cooper*, 507 U.S. 258, 268 (1993) (Primary jurisdiction doctrine applies to claims properly cognizable in court that contain some issue within the special competence of an administrative agency" and "requires the court to enable a 'referral' to the agency, staying further proceedings so as to give the parties reasonable opportunity to seek an administrative ruling."). There is no "fixed formula" for deciding whether to abstain pursuant to the primary jurisdiction doctrine; rather, a case-by-case determination must be made in light of the purpose of the applicable statute and the relevance of the administrative expertise. *See Ryan*

v. Chemlawn Corp., 935 F.2d 129, 131 (7th Cir. 1991) (citing *Bradford School Bus Transit v. Chicago Transit Authority*, 537 F.2d 943, 949 (7th Cir. 1976)).

The difficulty here is that the District, which invokes the defense, does not identify with precision any relevant proceedings to which this Court should defer for the resolution of the question presented by the plaintiffs' Count II. The defendant points to ongoing efforts by the federal and state EPAs and the IPCB to develop water quality standards that impose numeric limitations on phosphorus discharges. *See, e.g.*, Reply, Dkt. # 125 at 2, 12. But it does not identify *any* proceedings, whether ongoing or that could be initiated, which would adjudicate whether Special Condition 5 substantively incorporates the Illinois water quality standards into the WRPs' NPDES permits and, if so, whether the District is in violation of those standards because of conditions caused by the phosphorus in the three WRPs' effluent. The 2013 permit appeal pertains to the new numeric limit on phosphorus; only some kind of enforcement proceeding could now address the meaning of Special Condition 5. And here, the plaintiffs have brought a citizen suit precisely because no such proceeding has been brought by any regulator.

Moreover, the district is seeking ***entry of judgment*** on the basis of the primary jurisdiction doctrine, which merely permits abstention in favor of some other agency's process, not wholesale abdication. As *Reiter* makes clear, were it to conclude that the primary jurisdiction doctrine should be applied, the Court would simply stay the case while the parties seek an administrative ruling. But absent some plausible proposal for obtaining a ruling on the question at hand, the Court has no confidence that its stay would be anything but a *de facto* dismissal of the plaintiff's claims without adjudication. If the District were earnest about deferring to an administrative ruling, presumably it would have explained what administrative proceedings could be initiated at this time that would definitively interpret Special Condition 5 and adjudicate

the District's compliance. The recently completed permit renewal process might, perhaps, have afforded such an opportunity, but that process was completed in 2013 without resolving the fundamental question of whether, and if so, how, the WQS relate to numerical effluent limitations on phosphorus discharges. The question presented by Count II remains: whether the WRPs' nutrient discharges were and are violating the narrative WQS incorporated into their permits and whether the District therefore is liable for civil penalties. *See NRDC Inc. v. Outboard Marine Corp.*, 692 F. Supp. 801, 812 (N.D. Ill. 1988) ("Board is considering OMC's request for modification of its permit but is not evaluating whether permit violations have occurred and, if so, what penalties should be assessed."). Here, the Court "is asked to enforce the standards IEPA has already determined are appropriate," albeit standards that have not been quantified with numerical limitations. *See id.* In short, the District does not ask this Court to abstain from adjudicating the plaintiffs' claim; it asks the Court to defer to the state administrative body's adjudication of a different issue altogether.

In any event, the CWA contemplates the interpretation of the terms of NPDES permits even by non-expert courts, because the citizen-suit provision is one of the primary means of enforcing those terms. *See* 33 U.S.C. § 1365 (a) ("The district courts shall have jurisdiction . . . to enforce such an effluent standard or limitation . . . and to apply any appropriate civil penalties under section 1319(d) of this title."); *see also Ass'n of Irritated Residents v. Fred Schakel Dairy*, No. 105CV00707, 2008 WL 850136, at *10-11 (E.D. Cal. Mar. 28, 2008) (discussing applicability of primary jurisdiction doctrine to citizen environmental suits). Federal judges and juries do so routinely, both in citizen suits and actions initiated by the federal and state EPAs. *See, e.g., NRDC v. Cnty. of Los Angeles*, 725 F.3d 1194, 1205 (9th Cir. 2013) *cert. denied sub nom. Los Angeles Cnty. Flood Control Dist. v. NRDC*, 134 S. Ct. 2135 (2014); *Parker v. Scrap*

Metal Processors, Inc., 386 F.3d 993 (11th Cir. 2004)*; Altamaha Riverkeeper, Inc. v. Rayonier, Inc.,* No. CV 214-44, 2015 WL 1505971, at *3 (S.D. Ga. Mar. 31, 2015)*; Wishtoyo Found. v. Magic Mountain LLC,* No. CV 12-05600 GAF MANX, 2014 WL 6841554 (C.D. Cal. Dec. 3, 2014)*; Adams v. Teck Cominco Alaska, Inc.*, 414 F. Supp. 2d 925 (D. Alaska 2006)*; United States v. Allegheny Ludlum Corp*., 187 F. Supp. 2d 426, 447 (W.D. Pa. 2002) *aff'd in part, vacated in part,* 366 F.3d 164 (3d Cir. 2004) (assessing damages after jury determination of liability for violating NPDES permit); *Hudson Riverkeeper Fund, Inc. v. Yorktown Heights Sewer Dist*., 949 F. Supp. 210 (S.D.N.Y. 1996). And where, in a suit like this one, it becomes necessary to determine whether the District violated the water quality standards incorporated into Special Condition 5, expert testimony is available to assist fact-finders with the scientific or technical issues the standards implicate.

Finally, the District and its expert have argued that the "unnatural" and "of other than natural origin" criteria in the Illinois narrative WQS *cannot* be scientifically and meaningfully applied. It is therefore unclear why the District believes that any state administrative body is better suited to parsing what the District insists are non-scientific, and, indeed, non-substantive, criteria to begin with.

For these reasons, the District's primary-jurisdiction defense fails.

B. Permit Shield Defense

Next, the District argues that the CWA's permit shield defense absolutely insulates it from the claim in Count II that its phosphorus discharges violate its NPDES permit. The permit shield defense is derived from 33 U.S.C. § 1342(k), which provides: "Compliance with a permit issued pursuant to this section [§1342 is the NPDES provision] shall be deemed compliance, for purposes of section[] . . .1365 of this title [the citizen suit provision], with sections 1311, 1312,

1316, 1317, and 1343 of this title, except any standard imposed under section 1317 of this title for a toxic pollutant injurious to human health." In short, if a polluter holds an NPDES permit, then compliance with the terms of the permit satisfies its obligations under the CWA, and it cannot be liable for discharges in accordance with the permit. *NRDC v. Cnty of Los Angeles*, 725 F.3d 1194, 1204 (9th Cir. 2013). Conversely, "a permittee violates the CWA when it discharges pollutants in excess of the levels specified in the permit, or where the permittee otherwise violates the permit's terms." *Id.*

The seminal case construing § 1342(k), the permit shield, is *Piney Run Preservation Association v. County Commissioners of Carroll County, Maryland*, 268 F.3d 255 (4th Cir. 2001). In that case, a CWA citizen suit challenging a county's discharge of thermal pollution (a.k.a. "heat") from its sewage treatment plants into a stream, allegedly in violation of its NPDES permit, the Fourth Circuit held that the permit shield applies whenever the polluter complies with the terms of its permit and makes full disclosure of its discharges such that the challenged discharge is within the reasonable contemplation of the permitting authority. *Id*. at 269. In *Piney Run*, the heat effluent was not explicitly addressed by the permit; the plaintiffs argued that any discharge not explicitly allowed was a violation, while the defendant contended that any discharge not expressly forbidden was allowed. Rejecting both arguments, the Fourth Circuit reasoned that the permit should be deemed to incorporate implicitly all discharges known to the permitting authority, whether or not expressly addressed in the permit. In arriving at this interpretation of the permit shield, the court deferred to the EPA's reasoning in *In Re Ketchikan Pulp Co*., 7 E.A.D. 605, 1998 WL 284964, (E.P.A. May 15, 1998). Under the *Piney Run* formulation of the permit shield, the discharger retains liability for all discharges not in compliance with the permit—meaning any discharge that is specifically barred or that was not

adequately disclosed to the permitting authority and reasonably within its contemplation when the permit was issued. *See* 268 F.3d at 269.

Relying on *Piney Run*, the District contends that its phosphorus discharges are protected by the permit shield because it fully disclosed them during the permitting process. *See, e.g.*, Mem., Dkt # 114-1 at 6. The plaintiffs do not dispute that the District made a full disclosure in its permit applications of the levels of phosphorus in its treated effluent and of the fact that it had no original design capacity to reduce phosphorus. And given those disclosures, the discharge of phosphorus was plainly within the permitting authority's reasonable contemplation when the permits were issued. Therefore, the discharges are not forbidden by the permit, and, indeed, under *Piney Run*, were implicitly incorporated into the permit. The District ends the analysis right there, concluding that the permit shield bars liability for its phosphorus discharges.

But, contrary to the District's argument, *Piney Run* does not get it across the finish line. As the District sees things, disclosure + issuance of permit = immunity. But more is required for the permit shield to apply. *Piney Run* clarified that discharges are within the scope of a permit when they are adequately disclosed to the permitting authority even if the permit does not specifically allow them. But that does not answer the question whether such a discharge is protected if it violates a term of the permit itself. And subsequent cases have held that the permit shield requires compliance with all terms of the permit. *Alaska Community Action on Toxics v. Aurora Energy Servs., LLC*, 765 F.3d 1169 (9th Cir. 2014) ((“If a discharger is covered by a NPDES permit *and complies with that permit*, the permit ‘shields’ it from liability under the CWA”) (emphasis added)); *S. Appalachian Mountain Stewards v. A & G Coal Corp.*, 758 F.3d 560, 564 566 (4th Cir. 2014) (explaining that the permit shield’s “broad protection comes with an important responsibility at the permit application stage: full compliances with federal and

state reporting requirements, as well as with the conditions of the permit" and noting that permit holder "failed to fully comply with the express terms of the permit"). *See also Wisconsin Resources Protection Council v. Flambeau Mining Co.,* 727 F.3d 700, 706 (7th Cir. 2013); *Coon v. Willet Dairy, LP,* 536 F.3d 171,173 (2d Cir. 2008) ("[C]ompliance with an authorized permit is deemed compliance with CWA, so as long as Willet Dairy was acting in accordance with its permit it could not be liable in a citizen suit for CWA violations."). The EPA decision that provided the basis for the Fourth Circuit's analysis in *Piney Run* makes this clear: "[S]ection 402(k) shields a discharger from liability under the CWA ***so long as it discharges in compliance with its permit***." *In Re Ketchikan Pulp Co*., 7 E.A.D. 605, 1998 WL 284964, (E.P.A. May 15, 1998) (emphasis added). Indeed, the entire point of the permit shield is to insulate polluters who are in compliance with their permit; it is not a license to violate the express terms of the permit. *See Alaska Community Action*, 765 F.3d at 1174 (where defendants' permit expressly prohibited non-stormwater coal discharges, defendants were not shielded from liability for coal spilling into bay during transfer onto ships through conveyor system).

Therefore, the pertinent question for purposes of the District's permit shield defense is whether Special Condition 5, which incorporates Illinois water quality standards, is a substantive term of the permit. If it is, then the District's discharges must be in compliance with the WQS in order for it to avail itself of the permit shield defense.

The District would have the Court bypass this inquiry because, it argues, Special Condition 5 cannot override the statutory defense. Or, as the District states the argument: "vague narrative water quality standards generally referenced by a permit cannot form a backdoor basis for limiting the discharge of wastewater constituents that were disclosed to the appropriate regulatory body and that the regulator chose not to subject to discharge limits." Reply,

Dkt. # 125 at 3. On the other hand, the plaintiffs contend that Special Condition 5 is not a "general reference" to the WQS but incorporates them as substantive terms.

An NPDES permit is interpreted just like any contract or other legal document. *NRDC*, 725 F.3d at 1204; *Piney Run*, 268 F.3d at 269. Under Illinois law, this means that unambiguous terms are to be given their plain and ordinary meaning, and all provisions are to be given effect and not interpreted in such a way as to nullify them or render them meaningless. *See Thompson v. Gordon*, 241 Ill. 2d 428, 442, 948 N.E.2d 39, 47 (2011); *Buenz v. Frontline Transp. Co.*, 227 Ill. 2d 302, 308, 882 N.E.2d 525, 529 (2008). Special Condition 5, by its plain language, incorporates the Illinois WQS and requires that the permittee's effluent discharges not cause a violation of the WQS, irrespective of whether the discharge itself is otherwise allowed.[4] It would be easy to draft Special Condition 5 in such a way as to limit its applicability to discharges not otherwise allowed by the permit, but that is not what it says.

Other courts have held that state WQS substantively incorporated into an NPDES permit are enforceable terms of the permit. In *Northwest Environmental Advocates v. City of Portland*, 56 F.3d 979 (1995), the Ninth Circuit held that a citizen suit to enforce state WQS was cognizable where the WQS were conditions of an NPDES permit. *Id*. at 986. The District protests that this case preceded *Piney Run*, but it does not persuasively explain why the Fourth Circuit's interpretation of the permit shield in that case obviates the general principle that WQS incorporated into a permit become substantively enforceable terms. At least one other district

[4] Because the language is not ambiguous, resort to extrinsic aids to determine the meaning is not required. The Court notes, however, that during the 2002 permitting process the IEPA appeared to express the view that the absence of numeric effluent limitations on phosphorus did not relieve the District of the obligation to comply with downstate water quality standards, when it stated in the Responsiveness Summary: ""[T]his permit does not authorize or provide any legal protection to the [District] for violation of downstream water quality standards that may result from the discharges covered by these permits."

court has agreed with this proposition in the post-*Piney Run* era. See *Ohio Valley Envtl. Coal., Inc. v. Marfork Coal Co.*, 966 F. Supp. 2d 667, 683 (S.D.W. Va. 2013))("[I]f a permit holder does cause a violation of the water quality standards applicable to the body of water into which it discharges pollutants, then the permit holder has violated the terms of its permit. The permit shield would not protect such a permittee from liability, because the shield only applies to a permit holder who complies with all the conditions of its permit."); see also *Ohio Valley Envtl. Coal. v. Elk Run Coal Co.*, No. CIV.A. 3:12-0785, 2014 WL 29562, at *3 (S.D.W. Va. Jan. 3, 2014). By contrast, the District identifies no authority supporting its view that Special Condition 5 can be dismissed as inapplicable boilerplate rather than as a substantive limitation imposed on the District's effluent discharges.

Moreover, contrary to the District's arguments, water quality standards are no less binding when they are in the form of narrative or qualitative criteria instead of numeric limitations. *See PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700, 716-717 (1994); *Nw. Env'l Advocates*, 56 F.3d at 987. *Jefferson County* addressed a state's authority to enforce broad narrative criteria as a condition of certifying the building of a hydroelectric power plant. After holding that states may condition their CWA certification upon compliance with water quality standards and any other "appropriate condition of state law," the Court went on to conclude that Washington's minimum flow condition was such a requirement. The Court rejected the contention that numerical criteria were required for enforcement, holding that the state could enforce its qualitative requirement that stream flow be sufficient to allow particular uses. 511 U.S. at 716-717. In the *NWEA* case, the Ninth Circuit similarly rejected an argument that only WQS that had been translated into numeric effluent limitations were actionable. 56 F.3d at 986. The court reasoned that technological effluent limitations were meant

to improve enforcement but not to supplant the systems of water quality standards. *Id*. It is true that the narrative criteria themselves must be sufficiently clear to allow for meaningful regulation, *see, e.g.*, *NRDC v. U.S. EPA*, 808 F.3d 556, 578 (2d Cir. 2015), but the enforceability of any particular standard goes to whether a violation has been or can be established, not to the threshold question of what terms are part of the permit.

In this case, the District equates the lack of ***numeric*** limits on phosphorus in its effluent with a lack of any "effluent limits on phosphorus." *See, e*.g., Mem., Dkt. # 114-1 at 8 ("The District's permits shield it from Plaintiffs' backdoor attempt to manufacture a current phosphorus effluent limitation where IEPA saw fit to refrain from doing so."). This conclusion is not warranted; "effluent limitations" are not restricted to numeric limitations. *See Citizens Coal Council v. U.S. E.P.A.*, 447 F.3d 879, 895 (6th Cir. 2006) (citing cases). The District also suggests that the narrative nature of the relevant Illinois WQS renders them unenforceable for want of "an appropriate test." Mem., Dkt. # 114-1 at 13.[5] But properly promulgated WQS have the force of statute and cannot be interpreted so as to be entirely meaningless. And interpreting Special Condition 5 to substantively incorporate the Illinois WQS is consistent with IEPA's obligation to enforce water quality standards promulgated by the Illinois Pollution Control Board and to ensure that no permit results in the degradation of such standards. *See generally Granite City Div. of Nat. Steel Co. v. Illinois Pollution Control Bd.*, 155 Ill. 2d 149, 155, 613 N.E.2d 719,

[5] This line of argument, which features prominently in the District's briefs, would presumably come as a surprise to the Illinois Appellate Court, which recently addressed the appeal of the numeric phosphorus limit in the 2013 permits. In that court, the District argued that "the permits at issue here contain a special condition mandating that the District's effluent cannot cause or contribute to water quality violations" and that "such a special condition ensures the District's compliance with all applicable water quality standards." *Prairie Rivers Network v. Illinois Pollution Control Bd.*, 2016 IL App (1st) 150971, ¶ 39. In short, the District told the Illinois Appellate Court the opposite of what it argues here, which is that Special Condition 5 does not impose any limits on it.

721 (1993). "IEPA is essentially the 'gatekeeper of assuring clean water in Illinois' by assuring that any permit issued will not cause a violation of the Act ***or the administrative regulations***." *Illinois Envtl. Prot. Agency v. Illinois Pollution Control Bd.*, 386 Ill. App. 3d 375, 381, 896 N.E.2d 479, 485 (2008) (emphasis added). The District may well be right that specific numeric limitations are easier to administer—although clearly they are not easy to develop with precision—and provide permittees with clearer notice of how much of which pollutants the IEPA expects will keep the permittee from running afoul of the WQS. But any permittee that believes that a given term of its permit is too vague to provide appropriate notice has recourse, either by appealing the permit's terms to the IPCB or by challenging the enforceability of the permit term in an enforcement action. Otherwise, compliance with all terms of the permit is required.

Accordingly, Special Condition 5 incorporates the WQS as substantive terms of the permit, compliance with which is required in order for the permit shield to apply. The WQS do not restrict phosphorus discharges *per se*; and, as the District argues, its permit contemplates some such discharges because they were properly disclosed in the permitting process. But the WQS incorporated into Special Condition 5 do impose an outer limit to the extent that the District must ensure that its effluent does not cause certain conditions in the receiving waters. Therefore, the District is not "in compliance" with its NPDES permits for the WRPs simply because it disclosed the phosphorus content of its effluent. Under Special Condition 5, it must ensure that its effluent does not cause a violation of the Illinois WQS.[6]

In light of that interpretation of the District's relevant permits, the permit shield defense can apply only if the three WRPs' effluent does not cause violations of the Illinois WQS.

[6] The District's invocation of the permit shield defense does not address the numerical dissolved oxygen standard, which presumably does not have the vagueness and enforceability problems the District raises as to the "unnatural" and "of other than natural origin" standards for algal or plant growth.

Whether the phosphorus in the effluent causes violations of the narrative unnatural-growth and numeric dissolved oxygen standards is precisely the subject of the plaintiff's motion for summary judgment on the merits. And it remains to be decided, in the context of that motion, whether the plaintiffs have proved any violation of the WQS by the District. But for purposes of the District's motion, it is enough to say that it has not demonstrated that the permit shield defense applies as a matter of law.

Because it has not established that either of its legal defenses applies, the District's motion for summary judgment on Count II is denied.

II. Plaintiffs' Motion for Summary Judgment on the Merits

The plaintiffs seek judgment as a matter of law on the basis of what they say is undisputed evidence of pollution in the CAWS and the relevant segments of the Des Plaines and Illinois Rivers (the "waters") caused by phosphorus in the effluent from the three District WRPs at issue. In opposition to the motion, the District does not attempt to show that the waters are not encumbered with algal and plant growth or depleted levels of dissolved oxygen, nor does it dispute the quantity of phosphorus in the effluent. Instead, it primarily argues that the plaintiffs fail to meet their burden of proof, particularly with respect to causation. That is, the District contends that the plaintiffs have not shown that, as a matter of law, the observed conditions are attributable to the phosphorus content of the WRPs' effluent.

Both sides rely primarily on expert testimony, the main points of which are summarized below. On the plaintiff's side are Dr. JoAnn Burkholder, a professor of aquatic science and the director of the Centrer for Applied Aquatic Ecology at North Carolina State University, with a doctorate in Botantical Limnology; and Dr. Patricia Glibert, a professor of Envirconemntal Science at the University of Maryland's Horn Point Laboratory, with a doctorate in Organismal

and Evolutionary Biology. On the District's side is Dr. Todd Royer, a professor of environmental science at Indiana University with a doctorate in Biology.

A. Additional Facts

The concentration of phosphorus in the effluent of the three relevant District WRPs ranges between 1.0mg/L and 2.5mg/L. Treated effluent from the WRPs contributes the major portion of the actual water flow of the CAWS. Over 70% of the annual flow in the system is from the discharge of treated municipal wastewater effluent from the three WRPs plus the District's Lemont plant. About 70% of the annual flow leaving the CAWS at Lockport consists of treated wastewater, and discharges from the three water reclamation plants at issue constitute 90% of the treated wastewater in the system.

The phosphorus from the WRPs makes up a substantial portion of the phosphorus in the CAWS. Some portion of the phosphorus from the WRPs makes it way from the CAWS into the Des Plaines River and then into the Illinois River. The Illinois River also receives phosphorus from the Kankakee River and other tributaries that do not receive any effluent from the WRPs; the phosphorus from those rivers derives primarily from agricultural runoff and various point sources unrelated to the District's facilities. As previously noted, the phosphorus in the waters is at high enough levels such that it is not limiting to the growth of algae and aquatic plants. The District's expert testified that it was safe to assume that the District is the largest source of phosphorus to plant and algal growth "in the affected streams."

During at least some of the time period relevant to this lawsuit, the District's water quality monitoring in the CSSC at Lockport showed phosphorus levels above 1.0mg/L. Advisory guidelines from the federal EPA suggest that total phosphorus concentrations in the waters of the Midwest region should be .076 mg/L. These were published in the EPA's 2000 document

entitled Ambient Water Quality Criteria Recommendations: Information Supporting the Development of State and Tribal Nutrient Criteria. These criteria are not laws or regulations, however; according to the EPA, "they are guidance that States and Tribes may use as a starting point for the criteria for their water quality standards."

Flora in waterways consists of rooted and floating plants, benthic algae (which is attached to rocks or other surfaces), and sestonic (or floating) algae and cyano-bacteria. An accepted method of estimating the level of sestonic algal biomass is by measuring the level of chlorophyll α in the water (Dr. Royer, the District's expert, does not disagree). Higher levels of chlorophyll α correlate with higher levels of algae. And high algae concentrations may indicate nutrient (such as phosphorus) pollution. The federal EPA has suggested advisory criteria for sestonic algae in certain waters in Michigan and Ohio under which chlorophyll α levels should be .07 mg/L or lower. The District regularly samples chlorophyll α at fixed locations in the CAWS and the Des Plaines and Illinois Rivers as part of its water quality monitoring program. The North Shore Channel, the Little Calumet River, the Calumet Sag Channel, and the Illinois River, which all receive effluent from the plaints, have had levels of chlorophyll α much higher that .07 mg/L. The District does employ any other means of measuring plant and algal biomass other than measuring chlorophyll α. According to Dr. Royer, data about chlorophyll α does not provide any insight into the source of the phosphorus nor do they indicate anything about what is "natural" or "unnatural" about the phosphorus-algae relationship.

Aquatic plants and algae photosynthesize and respire; they put oxygen into the water during daylight, and they absorb it at night. Twenty-four hour variations in dissolved oxygen levels, known as "diel" or "diurnal" DO variations or swings, reflect the variations in DO levels. Dense concentrations of plant and algal growth often exhibit substantial diel DO variations. But

not all diurnal DO swings are attributable to high levels of plant and algal growth. When the DO level rises above the oxygen level in the air, the water is said to be "supersaturated" with oxygen. Plant and algal growth can cause supersaturation. According to Dr. Burkholder, "3.5 mg DO/L is considered at the maximum diel DO swing above which undesirable impacts on aquatic communities in the CAWS are likely to occur."[7]

The District continuously monitors DO. Based on the District's data, Dr. Burkholder found a total of 48 days on which there DO swings in excess of 3.5mg/L and DO supersaturation that, in her opinion, indicate "excessive and harmful" algal growth at different sites in the North Shore Channel, CSSC, Little Calumet River, and Cal-Sag Channel. Dr. Burkholder further identified more than 100 instances between 2007 and 2012 where the DO levels at points in the North Shore Channel, North Branch of the Chicago Ricer, Sourth Branch of the Chicago River, CSSC, Cal-Sag Channel, Little Calumet River and Lower Des Plaines River fell below the minimum level set by the applicable Illinois DO water quality standards. In Dr. Burkholder's opinion, those violations were due to plant or algal growth because they occurred in conjunction with large DO fluctuations over 24 hours and during periods of dry weather[8] during which sewer overflows would not have been a contributing factor. Dr. Burkholder observed DO levels below the minimum in several sites in the Lower Des Plaines River during testing in July 2011 that also occurred in conjunction with large DO swings. Dr. Burkholder considered any data point, no matter how fleeting, that fell below the levels set by the WQS to be a "violation."

[7] Dr. Burkholder derived this guideline from the standard adopted by the Minnesota Pollution Control Authority for central Minnesota Rivers, including around the Twin Cities. The District's expert, Dr. Royer, questions the applicability of that standard to the engineered waterways of the CAWS.

[8] The District contends that Dr. Burkholder did not adequately account for the long periods of days or even weeks for which the effects of sewer overflows can endure.

Dr. Glibert, also one of the plaintiffs' experts, analyzed the nitrogen isotopes in suspended aquatic plants in the CAWS and Lower Des Plaines River on two days in August 2013 and concluded that they "were suggestive of" a "sewage source," meaning "treated sewage" or "sewage effluent." Her stable isotope analysis of nitrogen is based on the ratio of nitrogen's two naturally occurring isotopes, ^{15}N and ^{14}N; sewage is enriched in ^{15}N compared to other sources, such that values above a certain level are, in Dr. Burkholder's words, a "signature" for sewage as the source of the nutrients absorbed by the plants or algae.

The District's expert witness, Dr. Royer, opines that the underlying data do not support the conclusions drawn by Dr. Burkholder and Dr. Glibert. He further opines that defining "unnatural" growth based on the sources of the nutrients in the water is "untenable" and unscientific because all Ilinnois waterways have significant human-related nutrient inputs, and therefore all waterways could be said to have "unnatural" growth under the plaintiffs' interpretation. Instead, Dr. Royer proposes an "effects-based" interpretation of "unnatural" that defines a critical level of biomass beyond which growth is considered "unnatural," though he does not identify the critical level.

Dr. Royer further opines on the cause of the observed conditions with respect to DO and plant and algal growth. He concludes that "degraded physical habitat and altered hydrology, not phosphorus, are the primary drivers of ecological health" in the relevant waterways.

B. Discussion

As noted, both parties rely on expert testimony to support their positions on the plaintiffs' motion. Neither party challenges the opposing experts' qualifications or the reliability of their respective methodologies under Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). A true "battle of the experts" generally necessitates

a trial. *See Gicla v. United States*, 572 F.3d 407, 414 (7th Cir. 2009) (explaining that "classic battle of the experts" requires "the factfinder to determine what weight and credibility to give the testimony of each expert and physician"); *Wipf v. Kowalski*, 519 F.3d 380, 385 (7th Cir. 2008) (explaining that "in a case of dueling experts . . . it is left to the trier of fact . . . to decide how to weigh the competing expert testimony"); *Lebow v. Am. Trans Air, Inc.*, 86 F.3d 661, 667 (7th Cir. 1996) (resolution of battle of experts "is best reserved for the trier of fact"); *Jenkins v. Electro-Med Indus., Inc.*, 916 F.2d 715 (7th Cir. 1990) (in battle of the experts, "the jury must determine credibility"). But to the extent that one side's expert opinions are substantially incomplete or inaccurate, they do not create a genuine issue of material fact that precludes summary judgment. *See NutraSweet Co. v. X-L Eng'g Co.*, 227 F.3d 776, 785 (7th Cir. 2000).

1. Conditions in the Waters

Without yet drawing any conclusion as to the plaintiffs' entitlement to judgment, the record establishes that parts of the relevant waters were observed to be encumbered with algae and plant growth and have exhibited low levels of dissolved oxygen. Other than challenging the legitimacy or workability of the "unnatural" standard, the defendants do not meaningfully dispute the plaintiff's evidence of the amount of sestonic algae, as estimated by levels of chlorophyll α, that were observed by Dr. Burkholder based on her own tests and the analysis of the District's own monitoring data. *See, e.g.*, Burkholder Report, Pl. Ex. 41 at 70-71. They vigorously dispute what might have caused those conditions, and the conclusion that the plant and algal growth is "unnatural," but they do not undermine the basic facts of what conditions were observed and measured.

As for the dissolved oxygen levels, the District again takes issue with the standard; in particular, suggesting that there is "violation" unless a condition has persisted for some unstated

time period, rather than simply being observed in a given sample. But the WQS unambiguously provides a floor below which DO levels must not fall. There is nothing that suggests that it is permissible for DO levels to fall below those levels for any amount of time, and therefore the District's attempt to undermine the conclusion that violations occurred by pointing out that the conditions were not observed for any particular amount of time (it does not suggest any specific duration) is irrelevant. Whether those drops in DO levels are attributable to sewer overflows or ecological conditions or anything other than plant growth caused by the phosphorus in the WRPs' effluent is a question of causation. But the District has not adduced any evidence that disputes that at the times and places identified by Dr. Burkholder, the levels of the DO in the waters—for whatever reason—fell below the minimum levels set by the WQS. Accordingly, there is uncontested evidence that the waters were out of compliance with the WQS for dissolved oxygen in those instances.

2. Causation

To prove a violation of Special Condition 5, the plaintiffs must establish that the WRPs' effluent, "alone or in combination with any other source,"[9] caused violations of the WQS for

[9] Neither party attempts to define "source," and the plaintiffs seem to assume that it means any other place of origin for phosphorus. *See, e.g.*, Reply, Dkt. # 135 at 11-12. However, in the context of environmental law, it seems much more likely that "source" refers to "point source." Under the Clean Water Act, a point source is "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." 33 U.S.C.A. § 1362(14). Importantly, a point source "does *not* include agricultural stormwater discharges and return flows from irrigated agriculture." *Id.* (emphasis added). The Seventh Circuit has explained that the term "connotes the terminal end of an artificial system for moving water, waste, or other materials." *Froebel v. Meyer*, 217 F.3d 928, 937 (7th Cir. 2000)

An NPDES permit is required to discharge any pollutant, that is to add "any pollutant to navigable waters from any point source." 33 U.S.C. § 1342(a)(1). "Discharge of a pollutant," in turn, is defined as "any addition of any pollutant to navigable waters from any point source." 33 U.S.C. § 1362(12)(A); *Froebel*, 217 F.3d at 937. Given that the term "source" appears in the

unnatural growth and low DO. With respect to the algal and plant growth, there appears to be no real factual dispute that much of the phosphorus in the CAWS comes from the District's WRP discharges. The District admits the typical concentration of phosphorus in the effluent from its water reclamation plants (1.4 mg/L, 1.1 mg/L and 2.7 mg/L at the North Side, Stickney, and Calumet WRPs, respectively), and further that the effluent makes up the large majority of the flow in the CAWS and that it contributes about 70% of the total phosphorus load. Without a true debate about where the bulk of the phosphorus is coming from, the only question is whether that phosphorus causes the plant and algal growth and the low DO levels that the plaintiffs have demonstrated. As to the former, this requires defining the narrative standard with sufficient specificity such that each alleged event of "unnatural" growth can attributed to the District's effluent. The defendant contends that this cannot be done, or at the very least, that the plaintiffs have not done so. The defendant further argues that the plaintiffs have failed to prove that the conditions observed in the waterways are attributable to phosphorus or, given the saturation level and alternate sources of phosphorus, that they would be improved by a reduction of phosphorus in the WRPs' effluent.

a. Interpretation of the Unnatural-Growth WQS

The District contends that because no authoritative administrative interpretations of the plant/algal growth WQS exist, and the plaintiffs do not identify "a definitive measure for what constitutes ***unnatural*** plant or algal growth, the Court should "defer to the ongoing administrative processes" and forgo a decision on the merits. Mem., Dkt. # 131 at 9-14. As the preceding discussion of the District's own summary judgment motion indicates, however, no

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Districts' NPDES permit, the most natural reading of the term is that it refers to "point sources," not to every natural or manmade source from which phosphorus (or whatever pollutant) might originate.

administrative proceeding has been identified that will result in an interpretation of the "unnatural" standard. It is a matter properly considered here.

Under Illinois law, "[a]dministrative regulations are construed according to the same standards that govern the construction of statutes; accordingly, the best indicator of the agency's intent is found in the plain, ordinary and popularly understood meaning of the language of the regulation. *Securus Technologies, Inc. v. Illinois Commerce Comm'n*, 2014 IL App (1st) 131716, ¶ 33, 12 N.E.3d 634, 643 (2014).

The relevant narrative WQS provide that the applicable waters "shall be free from" either "***plant or algal growth*** . . . ***of other than natural origin***" or "***unnatural plant or algal growth***." 35 Ill. Adm. Code. § 302.203 (emphasis added) 35 Ill. Adm. Code. § 302.403 (emphasis added). Despite the minor semantic difference in the two regulations, the parties treat them as though they provide the same standard, and the Court agrees that there is no material distinction to be made between "of other than natural origin" and "unnatural" when it comes to aquatic plant and algal growth. For the sake of brevity the term "unnatural" will be used for both.

The plaintiffs, primarily supported by Dr. Burkholder, contend that "unnatural" growth is that which originates from human activities.[10] They submit: "'Natural' is used to distinguish sources of chemicals and conditions that do not originate from human activities from 'unnatural' conditions and chemicals that are present as a result of human activities." Mem., Dkt. # 129 at 13-14. This interpretation has support in the language of the regulations; in particular, § 302.203 refers to growth of "other than natural ***origin***" which suggests that the source is relevant, not the effects. Dr. Burkholder distinguishes between "unnatural" growth (fueled by human-related

[10] This interpretation bears similarity to the Clean Water Act's definition of "pollution": "[t]he term 'pollution' means the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." 33 U.S.C. § 1362.

pollution sources) and "excessive" growth (that which interferes with use by beneficial aquatic life or by people); the standard pertains only to the former while "excessive" growth refers to its ill effects. Dr. Royer, the District's expert, advocates for an "effects-based" interpretation rather than one that is source-based, but the language of the regulations does not support that interpretation. The narrative standard does not appear to concern itself with the effects of the growth other than aesthetic impairment; the District itself points out that IEPA has said the unnatural growth restrictions enforce "aesthetic values." Def. Mem. 14, Dkt. # 131.

Because the plaintiff's interpretation of the narrative standard is consistent with the plain and ordinary meaning of "unnatural," and the defendant's effects-based interpretation lacks support in the text of the regulations, the plaintiffs' interpretation will be assumed for purposes of their motion. As will be seen, however, even accepting the plaintiffs' definition, they are not relieved of their burden to establish causation with respect to the "unnatural" growth, and defining unnatural growth by reference to human intervention does not simplify the plaintiffs' task when the waterways at issue are themselves largely the product of human intervention.

b. Application of the plaintiffs' standard

Assuming *arguendo* that the relevant WQS regulates all plant and algal growth that orginates from human activities, the plaintiffs' motion can be granted only if they have established conclusively (that is, to a point that no reasonable juror could disagree) that the phosphorus component from the District WRPs' effluent, "alone or in combination with other sources," caused the water conditions identified by the plaintiffs.

The plaintiffs contend that just the very small universe of undisputed facts requires summary judgment in their favor. Those facts are: "(1) MWRD puts large amounts of phosphorus into the CAWS, (2) MRWD's phosphorus is consumed by plants and algae living in

the CAWS, and (3) levels of phosphorus in the CAWS are so high that phosphorus no longer limits the growth of plants and algae." Reply, Dkt. # 135 at 9.

The District, on the other hand, contends that the plaintiffs' correlation of phosphorus levels and algal growth fail to establish causation. As to the narrative plant and algal growth WQS, the District argues:

> Causation – whether prohibited plant and algal growth is linked to phosphorus discharges from the District's WRPs – is also disputed. The District's expert disputes that specific instances of plant and algal growth can be linked to phosphorus discharges. Dr. Royer points to a study of the lower Des Plaines River showing that "the abundance of macrophytes [filamentous macroalgae and vascular aquatic plants] at any location in the river fluctuates yearly due to factors unrelated to phosphorus concentrations." Royer Rebuttal, DX 2 at 5. Moreover, Dr. Royer's own analysis shows that "[t]he abundance of [floating] algae in the CAWS and much of the lower Des Plaines and upper Illinois River is less than would be expected given the concentrations of total phosphorus in those waterways." Royer Report, DX 1/PSJ 53 at 5.
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> [T]he decisive point for this motion is that whether the prohibited plant and algal growth exists and is attributable to discharges of phosphorus from the District's WRPs are contested issues of material fact. As the District's expert states: "a claim of 'unnatural plant and algal growth' in the CAWS, lower Des Plaines River, and upper Illinois River caused by phosphorus in the treated effluent of the MWRD is speculative and not scientifically defensible." Royer Report, DX 1/PSJ 53 at 13.

Mem., Dkt. # 131 at 6-7. In short, the District argues, based on the testimony of Dr. Royer, that any causal link between excess plant and algal growth and the phosphorus in the WRPs' effluent is "speculative" because growth fluctuates for many other reasons and because any particular instance of plant and algal growth cannot be linked reliably to phosphorus levels in the water.[11]

[11] The District's brief does not address the plaintiff's evidence that plants and algae in the waterways are taking in nutrients with a "sewage signature"; that is, nitrogen isotopes that link the nutrients to a sewage source. But in Dr. Royer's review of Dr. Glibert's report, he casts doubt on the applicability of her data to the question of the source of the phosphorus in the Little Calumet River and the Des Plaines River on the two days of her sampling in August 2013. For example, contrary to Dr. Glibert's working premise, he opines that nitrogen is not a proxy for

It further argues that the conditions in the CAWS are such that reducing the manmade phosphorus component in the effluent would be unlikely to affect the level of plant and algal growth.

The Court agrees that the plaintiffs have failed to establish that a reasonable jury would have to conclude that the observed conditions are violations of the unnatural-growth standard caused by the phosphorus in the effluent from District's WRPs. Despite the apparent detail of their expert submissions, the plaintiffs have not sufficiently explained the connection between the WRPs' effluent and the observed conditions in the waters to preclude any reasonable alternative explanation, as they must do to merit summary judgment. *See D.Z. v. Buell*, 796 F.3d 749, 756 (7th Cir. 2015) (explaining that the district court's role on summary judgment "'is not to sift through the evidence, pondering the nuances and inconsistencies, and decide whom to believe,'" and that district court need not "sift through hundreds of pages of expert testimony" where citations to expert's report and deposition were "without any specificity or discussion"). Although the plaintiffs persuasively argue that more phosphorus can produce more plant and algal growth as a general matter, they have not established that any identified condition is specifically attributable to the WRPs' effluent.[12]

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phosphorus and notes that Dr. Glibert actually sampled nitrogen not from algae but from all the matter suspended in the water and that she did not compare the isotopes she sampled to those of the potential sources. Def. Ex. 15. Dr. Burkholder's rebuttal report addresses Dr. Royer's criticisms of the stable isotope analysis, but this disagreement goes to the weight of the respective opinions of the experts.

[12] The plaintiffs themselves have asserted another source of the violations of Special Condition 5: the combined sewer overflows that were the subject of their Count I in this case and of the consent decree in the IEPA action. *United States et al. v. MWRD*, 792 F.3d 821 (7th Cir. 2015). Although their expert opines that the impact of CSOs is minimal compared to the the WRPs' effluent, the plaintiffs have made no effort here to distinguish between violations caused by CSOs and those caused by the phosphorus content of treated effluent.

That is due in part to the absence of a definitive baseline of what is "natural" within the CAWS; the plaintiffs have not established that the conditions they document constitute "unnatural" growth under their own standard. The plaintiffs do not contest that phosphorus is a naturally occurring element and would be present in the waters absent the effluent from the WRPs, but contend that "natural" levels of phosphorus are far below those found in the CAWS. But Dr. Burkholder's efforts to establish a baseline "natural" level of phosphorus by reference to otherwise natural bodies of water, Report, Pl. Ex. 42, at 10-11, is, in Dr. Royer's view, inapt because the CAWS is anything but a natural body of water. Considering that significant portions of the CAWS were constructed as a sewer to carry Chicagoland's wastewater away from Lake Michigan, and that even the system's "natural" components have been re-engineered so fundamentally that they operate, literally, in a manner that is 180 degrees opposite of what nature devised originally, it is particularly uncertain what amount of algal growth in the CAWS could ever be considered "natural"—that is, growth that is not influenced by human intervention. Dr. Royer makes the same point more broadly with respect to the entire upper Illinois River basin:

> The Chicago River, lower Des Plaines River, and upper Illinois River have been extensively modified from their original (pre-European settlement) state. The rivers have been channelized (straightened), dredged, impounded, and otherwise altered to facilitate water flow and boat traffic. Agricultural and urban development in the watersheds during the past 180 years has contributed sediment and organic contaminants to the river beds. Today, the rivers lack most of the habitat featurs of a healthy river, including riffle-pool structure, woody debris, overhanging banks, riparian vegetation, and large stable substrate. The North Shore channel and the Sanitary and Ship Canal are entirely man-made structures that have no "natural" state. . . . Given the extensive and fundamental changes to the landscape, hydrology, and physical and chemical environment of rivers throughtout northeastern Illinois, one can only speculate that a plant or algal community occurring today in the CAWS, lower Des Plaines, or upper Illinois River is "natural" or "unnatural."

Def. Ex. 1, Royer Report at 3-4, Dkt. # ,133-1.[13]

Though it is their burden as the summary judgment movant to do so, the plaintiffs do not provide a convincing answer to the question: What is unnatural growth in such an unnatural system?[14] They do not offer data that show algal changes from a baseline drawn from the CAWS itself, or even from other systems that are remotely comparable to the highly engineered, nature-defying waterways that constitute the CAWS and related waterways of the Upper Illinois River basin. Accordingly, a reasonable jury could conclude that the plaintiffs' attempt to establish a natural baseline for assessing the conditions of the CAWS by reference to comparatively pristine natural waterways is akin to comparing apples to zebras.

The plaintiffs also fail to answer the question of ***how much*** phosphorus causes unnatural growth. But causation turns entirely on this question because the District is not liable for discharging phosphorus *per se*; it is liable only to the extent that the phosphorus is responsible for unnatural growth conditions. Importantly, the plaintiffs do not contend that the District's effluent cannot contain *any* phosphorus. They make reference to various target levels of phosphorus that are used in other contexts or that have been proposed for the future in the subject waters, and certainly they have advocated for caps on phosphorus that are below those ultimately adopted for the District in its 2013 permits. But they have not argued here, nor in any context of

[13] Apart from obvious issues of human pollution that have affected the waterways in question for decades, if not centuries, Dr. Royer's report discusses the potential effects of changes in the hydrology of the waterways on the rate of algal growth. He notes, for example, that navigational dams render the Illinois River a series of pools, and that the resulting restrictions on the "natural" flow of the river may result in higher concentrations of algal growth due to the reduced rate of water flow.

[14] To the extent that the plaintiffs' *experts* have addressed these issues, the answers have not found their way into the plainitffs' arguments regarding why their evidence demonstrates a violation of the unnatural-growth standard and, again, it is not the Court's role on summary judgment to bridge the gaps between an expert report and brief, or to choose between the accounts of well-qualified experts on each side, who have not been subject to any *Daubert* challenge.

which the parties have apprised the court, that phosphorus must be eliminated entirely from the effluent in order to comply with the narrative WQS for plant and algal growth.[15]

This omission is telling. If the permitted amount of phosphorus is *not* zero, then to meet their burden on causation the plaintiffs must articulate what level of phosphorus input from the effluent promotes unnatural growth in the receiving waters "alone or in combination with other sources." Otherwise, they cannot establish that the District's effluent exceeded that level. It is here that the District's criticism of the plaintiffs' definition of "unnatural" resonates—the plaintiffs cannot prove liability until they can say what action by the District constitutes the violation. *See NRDC v. U.S. EPA*, 808 F.3d 556, 578 (2d Cir. 2015) (striking down narrative standard that was insufficient to give guidance as to what is expected or to allow regulators to determine whether the standard was violated).

This hole in the plaintiffs' evidence has ramifications not only for the question of the District's liability, but also for the relief sought by the plaintiffs. The principal remedy requested by the plaintiffs is an injunction against further violations of the CWA. *See* Compl. 10, Dkt. # 1. But an injunction would, consistent with Rule 65(d)(1), have to do more than tell the District to

[15] As a practical matter, an argument by the plaintiffs that any incremental contribution to phosphorous levels in the waterways is sufficient to cause unnatural algal growth would be doomed to fail, as it is well-established that the District lacked the technical ability to remove phosphorus from its effluent during the relevant time period, and therefore, only ceasing to operate altogether would ameliorate the condition. The practical consquences of ceasing to treat the wastewater in the Chicagoland area are best left to the imagination at present, but it seems reasonable to assume that the environmental consequences, not to mention the public health impact, would be nothing short of disastrous. Imposing a zero-tolerance standard for phosphorus would also render the District's NPDES permits a nullity when issued; as already noted, the permitting authority clearly contemplated the input of some amount of phosphorus since it issued the permit after disclosure of the phosphorus component. The IEPA can issue a NPDES permit "upon proof by the applicant that the facility . . . will not cause a violation of this Act of or regulations hereunder." 415 ILCS 5/39(a); *Illinois Envtl. Prot. Agency v. Illinois Pollution Control Bd.*, 386 Ill. App. 3d 375, 381, 896 N.E.2d 479, 485 (2008)

stop violating the CWA; it would have to "describe in reasonable detail . . . the act or acts restrained or required." *See, e.g., E.E.O.C. v. AutoZone, Inc.*, 707 F.3d 824, 841-42 (7th Cir. 2013) (noting some of the problems with an "obey-the-law" injunction, including overbreadth and failing to state specifically the acts restrained as required by Rule 65(d)(1)); *City of New York v. Mickalis Pawn Shop, LLC*, 645 F.3d 114, 144 (2d Cir. 2011) ("an injunction must be more specific than a simple command that the defendant obey the law"). In other words, the Court would be required to tell the District to stop discharging phosphorous at levels that cause unnatural algal growth—without any idea about what those levels are.

It is not the Court's task to wade into these murky waters to assign a permissible level of phosphorus above which the District is liable for violating the unnatural-growth standard. As the movants, the plaintiffs have the burden of establishing that it was the District WRPs' effluent that caused the conditions that they claim violate the WQS. The District is liable only for the growth that is unnatural, and so far the plaintiffs have not demonstrated how much, if any, plant and algal growth in the CAWS can identified as "unnatural" nor how much man-made phosphorus causes it. They therefore cannot prevail on summary judgment as to the alleged violations of the unnatural-growth WQS standards.

c. Causation of the depressed DO levels

The plaintiffs also fall short of establishing causation with respect to the violations of the numeric DO standards. At a minimum, the District has raised a genuine issue of material fact regarding the cause of the observed concentrations of DO in the subject waters.

As to the dissolved oxygen WQS, the District disputes causation as follows:

> The District's expert Dr. Royer opines that "[i]t is not possible to determine the cause of oxygen patterns from the dissolved oxygen data alone." Royer Rebuttal, DX 2 at 7. His report explains that not just plants and algae consume oxygen. For example, nitrification and sulfur and iron

> oxidation are biological processes that consume oxygen at rates that are not dependent on the total phosphorus concentration in the water. Royer Report, DX 1/PSJ 53 at 14. In addition, physical processes that have no relationship to phosphorus, such as temperature and salinity, affect dissolved oxygen concentrations. *Id.* As mentioned above, Dr. Royer's research shows that low dissolved oxygen levels can occur in the absence of any human-caused phosphorus loading and where the phosphorus concentration is low enough to limit algal growth. Royer Report, DX 1/PSJ 53 at 15-18. He describes studies that could be done to determine how much each of these processes contributes to lowered dissolved oxygen values, but Plaintiffs have not done them. *Id.* at 15. Absent such studies, Dr. Royer concludes that the proposition that low dissolved oxygen levels are attributable to phosphorus discharges rests on a number of assumptions and that "the claim of low dissolved oxygen in the CAWS, lower Des Plaines River, or upper Illinois River being caused by phosphorus in the treated effluent is best viewed as a hypothesis, albeit a challenging hypothesis to test." *Id.* Dr. Royer concludes that "attributing the dissolved oxygen patterns to a particular cause, as Dr. Burkholder does in Tables 3 and 5 [of her report], is speculation." Royer Rebuttal, DX 2 at 7. Dr. Royer's analysis shows that Plaintiffs have failed to establish as a matter of undisputed fact that the low dissolved oxygen values observed at various points are attributable to phosphorus discharges from the District's WRPs.

Mem., Dkt. # 131 at 8. In sum, the District contends that the plaintiffs fail to establish that the low dissolved oxygen levels observed by Dr. Burkholder were caused by the WRPs' effluent because low dissolved oxygen levels occur even without abundant phosphorus and because the plaintiffs fail to account for the oxygen used up in biological processes that occur independent of phosphorus concentrations.

The plaintiffs can cite only their own experts' disagreements with Dr. Royer to support a contrary conclusion. But they have not established that Dr. Royer's reports are "substantially incomplete or inaccurate" such that they can be effectively disregarded. *See NutraSweet Co.*, 227 F.3d at 785. It is therefore the province of the jury to weigh the experts' opinions about what causes the depressed DO levels in the CAWS.

Moreover, the causation question with respect to DO is more complicated than simply whether the phosphorus in the effluent depresses DO levels. The plaintiffs' theory is that the phosphorus feeds overgrowth of plants and algae which in turn depresses the levels of DO in the water. The plaintiffs therefore must establish both that the WRPs' effluent caused plant and algal growth and that the growth is in turn what caused the DO levels. On this subject, the plaintiffs rely on Dr. Burkholder's expert opinion that "the phosphorus-rich, partially treated sewage effluents from [the District's] three largest [water reclamation plants] are causing or contributing to unnatural algal and plant growth in the CAWS, the Lower Des Plaines River from the CSSC to the I-55 Bridge, the LDPR from the I-55 bridge to the Illinois River, and the Illinois River down to the Peoria pool. The unnatural algal and plant growth is contributing, in turn, to violations of the Illinois Pollution Control Board (IPCB) DO standards for these waters." The Court has already concluded that the plaintiffs have not established the former, so the latter premise, on which it depends, must also fail at this stage.

Because the plaintiffs fail to establish as a matter of law that the phosphorus content of the WRPs' effluent caused violations of the unnatural-growth and DO water quality standards, they have not proved any violation of Special Condition 5 of the NPDES permits and the Clean Water Act. Therefore, their motion for partial summary judgment on liability cannot be granted.

* * *

The defendant's and the plaintiffs' motions for summary judgment are both denied.

Date: March 31, 2016

John J. Tharp, Jr.
United States District Judge